

Technical Paper Number 37

EVALUATION OF A "NO-FARE"
SYSTEM OF PUBLIC TRANSIT

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THE RHODE ISLAND
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265 Melrose Street
Providence, Rhode Island 02907

PREFACE

This paper evaluates the operation of public transit services in Rhode Island on a "no-fare" basis. Under this concept, fares would not be collected from riders on public transit vehicles, either at the time the service was used or in advance through purchase of tickets or tokens. Instead, all costs of public transit services would be met from other sources of funds.

This study results from a discussion between the Rhode Island Public Transit Authority and the staff of the Statewide Planning Program. The Program staff is the major source of planning assistance to the Authority. The discussion explored the views of Authority members on problems of transit operations which were of most concern, and of potential system improvements which should be given highest priority for study. The concept of a no-fare operation was selected as meriting further study since it combines aspects of several problems confronting both the Authority and the state as a whole: declining or stable ridership, costs of operation increasing more rapidly than revenues, congestion of principal arterials in and around central business districts, use of large amounts of land for off-street, non-structural parking within central business districts, and a range of environmental problems associated with increasing use of private automobile transportation.¹ Study of alternative approaches to the present

1 Ridership has shown a small increase in recent months but the general trend since 1969 has been downward.

fare structure is also recommended in the public transit element of the State Guide Plan, so that this evaluation carries out, in part, one of the recommendations of that plan.²

This study does not attempt to deal with the philosophical issues surrounding costs and revenues of public transit services. There are many who feel that these services should be paid for entirely by the user, and others who feel that the user should make some direct payment for the service, even if this is inadequate to meet total costs. These policy questions are beyond the scope of this investigation of the possibility of providing transit service without a fare, and the resulting problems and benefits.

This study was made by Mrs. Susan Temple, Junior Planner, working under the direction of Mr. Frank Geremia, Supervising Planner. The text was typed by Mrs. Vikki Lecuire and the graphics were prepared by Mr. M. J. Guisti, III. This work was undertaken as part of task 65013J, as described in the 1972-73 work program.³

2 Rhode Island Statewide Planning Program, Rhode Island Transit Plan, Report Number 9 (Providence: 1969), pp. 57-65.

3 Rhode Island Statewide Planning Program, Work Program, Fiscal Year 1972-1973 (Providence: 1972), pp. 50-51.

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PART ONE: THE "NO-FARE" CONCEPT

Public transit services have undergone a protracted transition: Once the major means of moving people in all but the smallest cities, these systems now serve only a small fraction of the total person-trips in any urban area. Viewpoints toward financing of these services have also changed. Public transit systems were universally constructed with private capital and operated from fares and other revenues. These systems generally produced substantial profits through World War II and into the early 1950's, when declining ridership began to seriously affect most public transit systems. By the mid-1960's most systems were operating at a loss, many had been acquired by public agencies, and several were receiving some kind of public subsidy.

The transit system serving the Providence metropolitan area conformed to this nationwide trend. In 1951 this system was privately owned and carried more than 100 million passengers. Two decades later, in 1971, the number of passengers carried had declined to about 18 million. The Rhode Island Public Transit Authority, an agency created by the State of Rhode Island, acquired the system in 1966 to prevent its drastic reduction or total disappearance. Public funds appropriated by the General Assembly help offset the system's operating deficit, beginning in fiscal year 1970-71.

The rationale behind a no-fare system is that mass transit is an essential service and should be financed in the same manner as other essential services. The costs associated with a no-fare

system of mass transit for the Providence and Newport areas will be examined here as well as some of the benefits. All of the impacts of a no-fare system are impossible to estimate in detail. However, it is important to have an idea of the type and general magnitude of possible impacts in the decision making process.

PART TWO: THE PUBLIC TRANSIT SYSTEM

The transit system operated by the Rhode Island Public Transit Authority is typical of most systems serving medium and large-sized metropolitan areas. It consists primarily of radial routes terminating in the downtown areas of Providence and Pawtucket. Since the Authority began operating in 1966, some express routes have been added to the basic system, and service has been initiated between Jamestown and Newport (in 1969) and within Woonsocket (in 1972). At the beginning of 1972, a total of 538 miles of local service and 63 miles of express service were operated in the Providence urban area, providing service to about 70 percent of the residents and 82 percent of the employment in the Providence urban area.

Comparison of the public transit systems serving the 30 largest Standard Metropolitan Statistical Areas (the Providence-Warwick-Pawtucket SMSA was 29th in size in this analysis) in terms of percentage of work trips made by transit, population density, and car ownership shows that the Providence SMSA is most similar to the Los Angeles and Detroit SMSA's in demonstrating a very low level of transit use for work trips. This is despite the fact that the population density of the Providence SMSA was more comparable to that of the Baltimore, Pittsburg, and St. Louis metropolitan areas, where the level of transit usage for work trips is much higher. Income differentials certainly do not account for this situation.

This usage pattern indicates that there is significant potential for increased use of transit for work trips in the Providence urban area. It also suggests that some dramatic steps must be taken in order to realize this potential. The fare structure on the Authority system ranks relatively high, reflecting the fact that the fares are essentially the same as those in other areas but the more compact form of the Providence urban area results in shorter average trip lengths and higher fares per passenger-mile.

Consequently, a major change in the fare structure may offer a way of substantially increasing transit usage by work-trips. The year 1975 has been selected as a reasonable point in time at which to evaluate such a change.

A. Bus-Miles Operated in 1975

The Rhode Island Transit Plan sets up a short range improvement plan for the period 1969 to 1975, for RIPTA.⁴ On the basis of recommended route changes, RIPTA would operate 5,958,800 bus miles in 1975. In view of the fact that RIPTA operated 6,029,108 bus miles in 1972, new estimates have been made on the basis of a seven year trend, 1966-1972.

This seven year trend shows an annual increase of 58,437 bus miles. If this trend continues, by 1975 RIPTA would be operating 6,297,390 bus miles in the Providence area alone.

⁴ Op.cit., pp. 31-72.

To arrive at an estimate of bus miles in the Newport area in 1975, the average growth rate of the 1966-1975 RIPTA trend was applied to the 1971 actual bus miles operated in Newport. The 1975 estimate for Newport is 538,467 bus miles. Total bus miles for the 1975 public transit system in Providence and Newport is then estimated at 6,835,857.

B. Estimated Passengers Serviced in 1975

When RIPTA took over the United Transit Company operations on July 1, 1966, an increase in fare passengers was anticipated. However, during 1969 to 1971 there was a decrease in the number of fare passengers served. Plotting a trend on 1966-1972 data for RIPTA indicates that there would be 17,327,800 fare passengers on the greater Providence mass transit system in 1975. This figure does not include the Newport area.

By plotting a trend on 1968 to 1971 data for Transit Lines, Inc. in Newport, the estimate for 1975 fare passengers would be 746,400. However, anticipated loss of fare passengers associated with the closing of the Newport Naval base is 45 percent. The 1975 estimate of fare passengers is therefore reduced to 410,500.

The total fare passengers served on the public transit system serving the two largest urban areas would then be estimated at 17,738,300. This figure in no way reflects the impact of a no-fare system; it is based on seven year trend figures for the existing RIPTA system and a reasonable estimate of future usage of the Newport system.

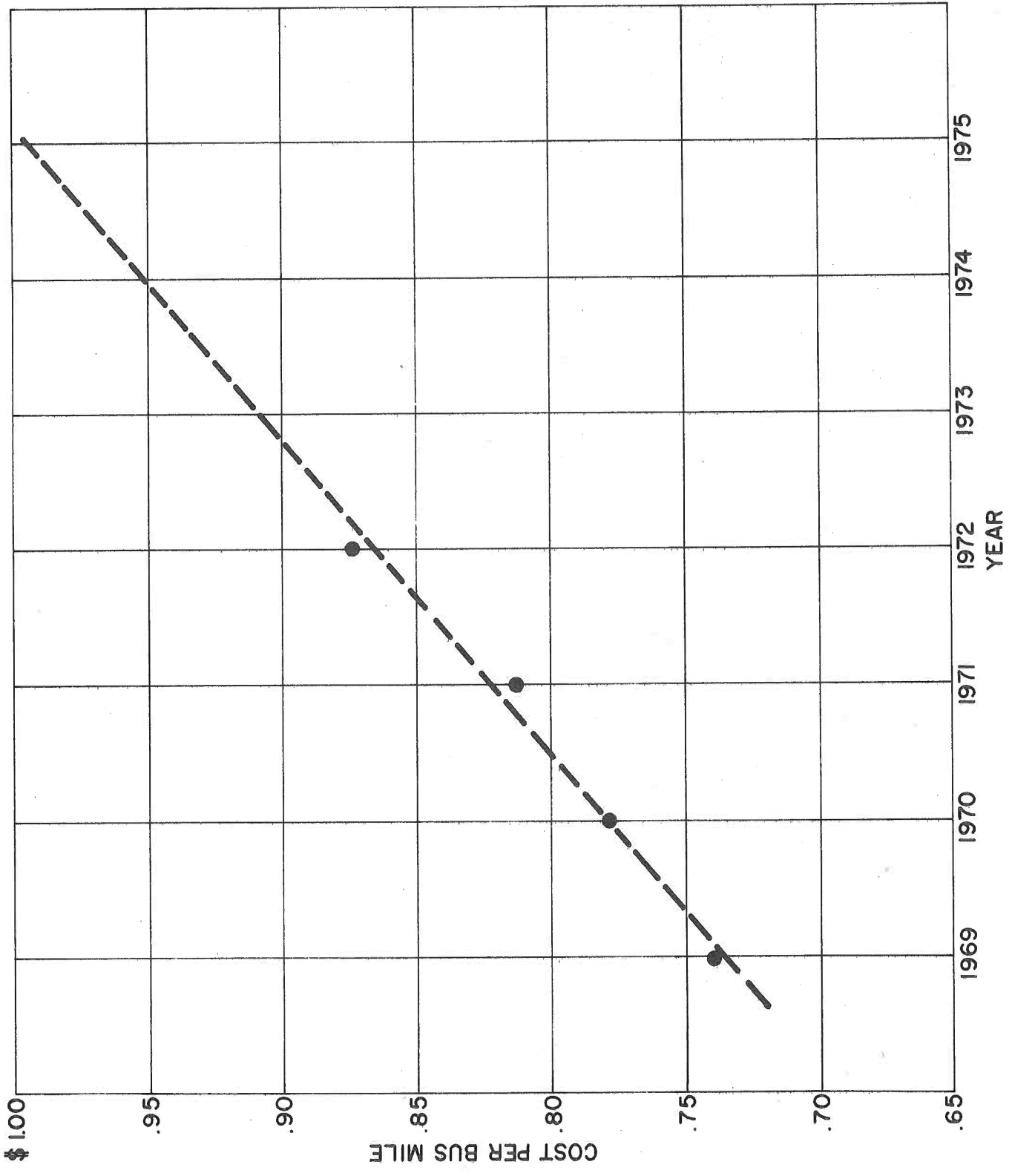
C. Cost of Public Transit in 1975

On the basis of a four year trend, cost per bus mile is estimated to be \$0.996, or about one dollar per bus mile, in 1975, as shown by the graph following. This estimate is based on the assumption that actual expenses will follow the anticipated trend. Operating expenses have not increased at the same rate each year. As shown by Table 1 following, in 1969-1970 operating expenses increased by 5.59 percent; in 1970-71 they increased by 1.55 percent; and in 1971-72 they increased 8.77 percent. The largest item is transportation expense, of which about 84 percent is wages. Wages themselves represent almost half of total operating expenses. In FY 1969 wages represented 45.08 percent of total operating expenses; in FY 1970, 45.52 percent; in FY 1971, 45.82 percent; and in FY 1972, 46.03 percent. Continued increases in wages could push operating expenses beyond the anticipated level.

D. State Subsidy

In January, 1971 a token system was instituted by which RIPTA is reimbursed \$.15 from state funds for each token sold. These tokens are limited to use by school children and the elderly. In calendar year 1972, 17.41 percent of total fare passengers were token users. If token users represented the same percentage of total passenger fares in 1975, there would be 3,088,200 tokens sold. At \$.15 subsidy or reimbursement by the state for each token sold the cost to the state would be \$463,230; this assumes that the basic fare remains at \$.35. However, it is more likely that the basic fare will be \$.40 in 1975. At a \$.20 subsidy, the cost to

COST PER BUS MILE 1969-1975



Year	Actual (Y)	Based on Trend (Y _c)
1969	.7391	.73536
1970	.7781	.77882
1971	.8125	.82228
1972	.8725	.86574
1973		.90920
1974		.95266
1975		.99612

$\sum (Y_c - Y) = 0$

Trend Line
 1969 = 0
 a = .73536
 b = .04346

ANNUAL PERCENT CHANGE OF OPERATING EXPENSES, 1968-1972

Operating Expenses:	Percent Change			
	<u>1971-1972</u>	<u>1970-1971</u>	<u>1969-1970</u>	<u>1968-1969</u>
Equipment Maintenance & Garage	11.78%	9.93%	5.92%	4.68%
Transportation	8.64%	2.40%	6.79%	8.79%
Public Information & Passenger Promotion	-4.98%	-18.17%	+17.56%	9.44%
Insurance Claims & Safety	-6.35%	-12.83%	5.78%	-8.56%
Administrative and General	-2.42%	-3.70%	-1.64%	13.88%
Employees' Welfare	11.30%	2.84%	11.53%	6.82%
Depreciation	16.73%	-20.15%	.09%	.20%
Taxes and Licenses	9.74%	20.93%	8.01%	20.53%
Operating Rents	3.32%	9.60%	-1.88%	3.39%
Total Operating Expenses Including Depreciation*	8.77%	1.55%	5.59%*	7.04%*

* In 1969 and 1970 actual operating expenses were adjusted to reflect demonstration grants.

the state would then be \$617,650. These estimates are based on calendar year experience.

E. Revenues and Costs in 1975

The operating cost of the proposed system as developed from the data preceding would be 6.84 million dollars. The projected distribution of this money was determined here by averaging the percentage of total cost that each category of operating expenses represented over the 1969-1972 period. Estimates of the operating costs for 1975 are as follows: transportation, 3.70 million dollars; equipment, maintenance and garage, .95; employees' welfare, .65; depreciation, .52; administrative and general, .37; insurance claims and safety, .36; taxes and licenses, .24; public information and passenger promotion, .06; and operating rents, .01.

The total cost for the 1975 system is \$6.84 million and the state subsidy for elderly and school children at \$.20 would be about .62 million. The net cost of a no-fare system, or the additional funds necessary to meet the operating costs of a no-fare system is 6.22 million.

For comparison it is important to estimate the cost of the 1975 system using the conventional fare box system. Potential revenues of the 1975 system operating on a fare basis can be projected by multiplying estimated passengers by estimated average fare per passenger. The average of the mean passenger revenue for 1969, 1970, 1971, and 1972 is \$0.203390. Assuming that the same relationship exists between the basic fare and average passenger

revenue the average passenger revenue would be \$0.232446 in 1975 with a \$.40 basic fare. Total potential revenue is therefore 4.12 million dollars. There would be an operating loss of 2.10 million dollars with a fare system even if the basic fare is increased and the state increases the token subsidy.⁵

Finally, the net operating cost of a no-fare system is 6.22 million while increased fare and increased token subsidies would still result in an operating loss of 2.10 million under a conventional fare box system. These figures include only operating costs and fare box revenues. They do not include capital costs, school bus inspection costs or revenues, advertising, or newspaper revenues.

5 The Rhode Island Public Transit Authority has made an independent estimate of its cash operating deficit for fiscal year 1974-75 of \$2,056,600 and for fiscal year 1975-76 of \$2,342,900. The Rhode Island General Assembly has appropriated a total of \$1,335,225 for support of RIPTA operations in fiscal year 1973-74 (Bill 73-H-5976, Sub B, approved May 4, 1973).

PART THREE: PERFORMANCE MEASURES

There are certain performance measures which can be used to illustrate the benefits of an increase in bus use under a no fare system if accompanied by a decrease in automobile use.

One of the major traffic problems in many suburbs as well as central cities is congestion. Congestion problems can arise in part as a result of improper timing and could be ameliorated by staggered work hours or more efficient passenger loads per vehicle. While congestion problems could also arise if roads are not able to carry the traffic, increased capacity of the highway system would result in excess capacity at non-peak periods. This would be expensive in terms of time, money, and land use.

During peak hours each private car carries an average of only 1.4 persons. Transportation Topics, April, 1972,⁶ stated "two busses can carry as many passengers as a mile long line of automobile travelers at one-third the speed, with perhaps one-twentieth the horsepower. Fifty busses can transport the same number of commuters as 2,000 automobiles.", although at some sacrifice of speed and convenience. An immediate solution to congestion problems in suburbs and cities would be to increase the number of passengers in each car through pooling. A better solution would be greater use of the bus. This would not only relieve congestion on the roads but also relieve parking space problems which often occur.

In the recent past there has been a significant relocation of

⁶ U.S. Department of Transportation, "Urban Traffic Math," Transportation Topics, Vol. 1, No. 1, (April, 1972), p. 3.

companies to the suburbs as they leave the cores of metropolitan areas. In Rhode Island, the communities of Bristol, Central Falls, Cranston, Providence, and Woonsocket all experienced losses in total employment in the 1960-1970 decade. Pawtucket and Providence, the core of the metropolitan area, lost a total of 174 manufacturing plants over this period while Woonsocket, an older outlying center, lost 43.⁷

The new suburban locations often have adequate on-site long-term parking; some do not and there has been increased off street long-term parking in some areas. Such relocations are creating a need for efficient bus transportation keyed to work hours in outlying areas. However, the demand may not be great enough to pay for such service from the fare box.

A more critical parking space problem exists in the Providence area. While factories have relocated, new offices have continued to open in the downtown area. While there had been a mass exodus of the middle class to the suburbs, luxury apartments have now been built in the city. These factors have resulted in the need for more long-term parking spaces. Estimates made several years ago pointed to a 4,000 parking spaces deficiency in downtown Providence in 1975. However, this is probably an understatement of the problem. Bus transportation into and around the downtown area will become more important in the future.

7 Rhode Island Statewide Planning Program, State Land Use Policies and Plan (draft) (Providence: January, 1973), p. 146.

As more automobile drivers are diverted from their cars to busses in the downtown area, the number of parking spaces available for short-term use would be increased. The availability of short-term parking is important in attracting shoppers to the downtown area. The major attraction of the shopping malls has been the availability of "free" parking although merchandise selection and price ranges are more limited.

Safety is another factor that should be considered. There were 78 automobile fatalities and 12,126 injuries recorded in 1971 for Rhode Island urban areas. There were no bus fatalities and only 119 bus injuries in all Rhode Island urban areas in 1971.

Pollution continues to be a problem despite advances in pollution control devices for automobiles. If a significant portion of the population could be diverted from automobile driving to bus riding, the pollution savings might be significant. The percentage of drivers who would be diverted, however, is not known. The following example is used to illustrate the magnitude of the potential pollution savings for new workers. Assume there are 3,500 new workers in Rhode Island each year, most of whom work in the urbanized area.⁸ Statistically, it has been shown that 67 percent of all workers drive their car to work and they drive 11.6 miles round trip. This means that this new work force would drive 27,200 vehicle miles each day just to go to and from work. Pollution resulting from this increased travel is estimated in Table 2.

⁸ An average net increase of 3,500 new job opportunities each year as required to maintain present employment levels.

On an annual basis, this pollution represents about .14 percent of the CO, NOx and the pollution of all highways in Rhode Island. Similarly, this pollution represents 437.04 percent of CO, 801.07 percent of NOx and 89.29 percent of HC for total transit services in the state.

Table 2

POLLUTION ESTIMATES FOR NEW WORK FORCE ONLY

	<u>lbs/VMT</u>	<u>Daily VMT for Group</u>	<u>Daily lb/VMT for Group</u>	<u>Annual lb/VMT for Group</u>	<u>% of Total Highway Pollution</u>	<u>% of Total Mass Transit Pollution</u>
CO	.1496	27202	4069	1062009	.1355%	437.04%
NOx	.0147	27202	399	104139	.1398	801.07%
Hc	.0239	27202	650	169650	.1443	89.29%

Source: Column 1 -- Rhode Island Statewide Planning Program, "1972 Rhode Island Transportation Inventory for 1974 National Transportation Study", Technical Paper Number 34 (Providence, Rhode Island: March, 1973), p. A-2.

Columns 2, 3, 4, 5, 6 are estimates based on assumptions explained in text.

PART FOUR: CONCLUSIONS

There are many benefits that might accrue with greater use of mass transit as automobile drivers are diverted. Some of these are: savings in air pollution, congestion relief, better use of money, time, and land associated with construction of highways, increase in safety exposure and generated central business district trips and better service to "captive" riders. However, there is no guarantee that a large number of drivers will be diverted, nor is there any adequate estimate of the number of automobile drivers diverted with a no-fare system. The decision to institute a no-fare system must finally rest on the concept of a no-fare system itself.

Mass transit services must be maintained at not less than the projected 1975 level; how, then, shall such a system be financed? Is it possible that fare box revenues can cover the operating costs? It is unlikely because unless ridership increases, particularly through attraction of work trips, only the captive riders continue to use this system: the poor, the children, and the elderly. They are the least able to pay the increasing costs of the transit system. Should the state continue to subsidize the system and maintain the existing or slightly increased fare? This solution is more realistic but such an approach does not contend with the growing needs for future transportation into and out of urban areas of Rhode Island.

Eventually, there is a trade off between the land available for automobile use and land available for any other use in the city. The vitality of the city as a center for cultural, recreational and

commercial activities could end if transportation becomes too difficult in terms of time, cost, safety, or comfort. A no-fare system which diverts automobile users could benefit even the non-users.

Funding from the federal level will probably be available in the future. Legislation introduced in Congress in 1972, and passed by the Senate, S.386 (January 16, 1973), would have allowed a percentage of the highway trust fund to be used for mass transit. This bill provided that two-thirds of the operating costs of public transit services could be paid with federal funds if the remaining one-third were paid by state and or local funds. This would mean that of the \$6.84 million operating cost of the 1975 systems, \$2.28 million would have to be paid by state or local funds. If \$.62 million of the \$2.28 were paid as fare subsidies for school children and elderly, \$1.66 million additional state or local funds would be needed to meet operating costs. Under this financing arrangement, a no-fare transit system could be operated at essentially the same cost to the state as would be incurred in subsidizing the operating deficits of a system operating at a fare higher than that now charged. Many additional benefits associated with a no-fare operation, as outlined in Part Three, would accrue, although these are difficult to quantify.

The Federal-Aid Highway Act of 1973, as finally passed by Congress and approved by the President in August, 1973, does not provide subsidies for transit operations. However, this kind of federal financial assistance would be authorized over a two year

period by the proposed Emergency Commuter Relief Act. This bill has been passed by the Senate on two occasions and is now before the House.

Other sources of revenue can of course be used to support a no-fare transit operation (or to fund the operating deficit of a more conventional operation). Among these sources are:

- 1) General tax revenues: Most revenues go into the general fund, making this the largest source of funds available. At the state level, sales and income taxes are the principal sources of general revenues, while for cities and towns the local property tax occupies this position. Arguments against using this source relate directly to these sources: the cost of a service used by some is paid by all. This is of course true of almost every activity supported by general fund revenues. At the local level, use of this source would have the additional disadvantage of increasing the burden on an inequitable, inaccurately assessed, and generally unsatisfactory source of revenue.
- 2) Taxes on automobile users: the principle favoring use of this source is that, since automobiles are the cause of most traffic congestion, their owners or drivers should bear some of the cost of relieving congestion. This principle is widely disputed, but it does provide an easily identifiable revenue source, whether collected through an apportionment or increase in the tax on gasoline or vehicle registration fees.

Conservative projections of the net taxable motor fuel sales for 1975 indicate that the \$6.22 million needed to operate the transit system on a "no fare" basis could be raised by a tax of 1.46 cents per gallon. If this charge were in addition to the existing tax, the total state tax on motor fuel would be ~~8.46~~ cents per gallon.

The state registration fee for motor vehicles varies according to vehicle weight, but the present mean registration fee is \$21.02 per vehicle. To supply an additional \$6.22 million, the average fee would have to be raised by \$10.54 to about \$31.56 per registration for 1975.

- 3) Peak hour automobile use changes: this method is a specialized version of general automobile user taxes discussed above. It involves collection of a fee or tax from auto drivers who enter a congested area during peak travel hours. It can be collected through periodic sale of "entry passes" or by indirect means such as a tax on parking imposed on vehicles parked during peak hours. Either method required a substantial amount of policing to be effective.

There are approximately 5,500 parking spaces available to commuters in the Providence central business district. Assuming there are 250 working days in a year, each of these "long-term" parking spaces would have to be taxed \$4.52 per day to raise \$6.22 million annually.

As an other alternative, a no-fare system could be operated on an experimental basis, in order to measure the direct and indirect costs and benefits. Such a demonstration could be funded jointly by the state and the Urban Mass Transportation Administration of the U.S. Department of Transportation in order to provide data in an area in which no real experience is available.

The two major criticisms of a no-fare system also relate directly to the financial aspects of the operation. First, efforts to meet operating expenses from fare box revenues, even when unsuccessful, do provide some incentive to operate as efficiently as possible. Second, since all residents of the state do not have equal access to public transit services, and some have no real access, a no-fare operation would result in an unequal distribution of costs and benefits.

Both of these objections are valid, but both require qualification. Both are also true of a transit operation which is subsidized by public funds, although presumably to a lesser degree than of a no-fare operation. The first objection applies to any activity which is conducted as a public service. Performance standards can be used to measure the efficiency of such an operation. The transit industry has decades of experience in almost every urban community to draw upon to formulate valid standards. There should be no greater difficulty in evaluating the efficiency of a subsidized or a no-fare transit operation than in evaluating some other activity which has been recognized as a public service for a much longer period. Education, police and fire protection, and

recreation and conservation are only a few of the public service areas which present more difficult problems in measuring efficiency.

The second problem is more serious because it is clear that, while everyone would receive some benefit from increased transit usage, those who actually use the service receives more direct benefits than those who do not. In some other areas, an attempt to meet this criticism has been made by drawing only on those communities actually served for funds to support public transit deficits. This approach has produced some very elaborate formulae for distribution of costs to those served, but these do not appear to solve the problem. Among all those served, those who use the service still receive more benefits than those who do not. And, even those who do not have access to the service receive some benefits simply from its existence, in much the same way that the entire public receives some benefits from public education, and must contribute to its support, although some part of this public is not a direct "user" of this service.

Neither of these objections can be entirely resolved through application of either principles or data. As noted earlier, the decision as to how to fund public transit, as either a partial (subsidized) or a full (no-fare) public service must be based on the concept itself, and on the alternatives to this concept.

APPENDIX: ENVIRONMENTAL ASSESSMENT

1. Summary

The operation of public transit services in Rhode Island on a "no-fare" basis is explored. Based on an evaluation of anticipated transit revenues and expenditures in 1975, transit services could be operated on a no-fare basis at approximately the same cost to the state as operation under an increased fare, if federal assistance to operating deficits at the level considered by Congress and approved by the Senate in 1972, or if operated under a federally-assisted experiment.

2. Environmental Impacts

Although the most significant environmental impact anticipated from operation of a no-fare transit system would be a shift of trips, and primarily of work trips, from private automobiles to public transit, the very limited experience available does not provide an adequate basis for conclusions as to the magnitude or the direction of such changes. To the extent that a shift of mode did occur, several beneficial environmental impacts would result: reduced congestion on principal arterial streets in and around central business districts, reduced demand for land for off-street parking within central business districts, and reduced pollution from internal combustion engines are the most important of these. The available data indicates that the potential magnitude of change of transportation mode would not permit major reductions or deferrals in highway construction, since the work involved

consists almost entirely of upgrading existing facilities to meet minimum standards.

3. Unavoidable Adverse Impacts

The most important impact of a no-fare transit operation would be in the increased allocation of tax revenues necessary to support the service. This transfer from partial support by user fees would divert public resources from other needs, probably including social and environmental programs.

A second adverse impact may result. The evidence available shows that a no-fare transit system may cause an increase in both public transit and private automobile trips to central business districts. Whether this is a temporary phenomenon or a permanent result is not known.

4. Alternatives

The alternative to the no-fare transit operation studied in this paper is a continuation of the present system, supported by a combination of fares and public subsidy. Analysis of revenues and expenses, including a fare increase, demonstrates that operation of the system from fares alone is not an available alternative within the time period covered in this study.

5. Relationship Between Local Short-term Uses of the Environment and Maintenance and Enhancement of Long term Productivity

Operation of a no-fare transit system could intensify the use of land within central business districts, principally by permitting conversion of open parking lots to building sites. The magnitude of such conversion cannot be determined, but the potential can be estimated from the fact that, in 1971, 51 acres of land in downtown

Providence (census tract 008), or 25 percent of the total non-street land area, was used for parking.

6. Irreversible and Irretrievable Commitments of Resources

No irreversible or irretrievable commitments of resources are made in operating a public transit system on a no-fare basis.

7. Environmental Controls

No environmental controls are expected to result from operation of a no-fare transit system.